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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/560,763

12/14/2005

Bernd Rumpf

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11/15/2007

HANLEY, FLIGHT & ZIMMERMAN, LLC
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EXAMINER

GISSEL, GUNNAR J

ART UNIT

PAPER NUMBER

4176

MAIL DATE

DELIVERY MODE

11/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/560,763	Applicant(s) RUMPF, BERND	
	Examiner Gunnar J. Gissel	Art Unit 4176	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/14/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

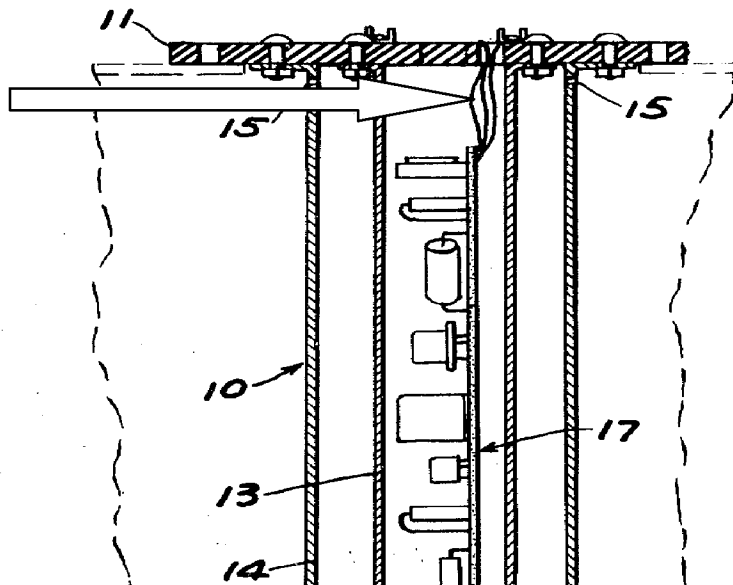
2. Claims 1-4, 7-10, 13 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 3,638,491 to Atlee Hart (Hart).

Regarding Claim 1, Hart discloses a method for manufacturing an electronic circuit arrangement (column 1, line 41) in a motor vehicle fuel tank (column 1, lines 4, 40) comprising the steps of: arranging one or more electronic modules on a substrate (Figure 1, element 17), and fixating said substrate with respect to a fuel tank wall (column 2, lines 14-15). The tube 13, to which substrate 17 is fixed, is mounted to the fuel tank, shown in Figure 1. Connecting to said substrate so as to form an encapsulated space that comprises said one or more electronic modules and is separated from any fuel or vapor outside said encapsulated space (column 2, lines 12-15). The pipe 13 and the plug 16 separate the electronic modules from fuel and fuel vapor.

Regarding Claims 2, 4, 10 and 13, Hart discloses the device and methods of Claims 1, 3, 7 and 9, and further discloses that said cap is connected to said substrate by soldering. In Hart's disclosure, the substrate 17 is attached to the cap, composed of

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pipe 13 and plug 16 via wires (Figure 1). As wires are attached to circuit boards via soldering, Harts substrate is connected to the cap via soldering (indicated by arrow in the drawing excerpted from Figure 1, below).



Regarding Claim 3, Hart discloses an electronic circuit arrangement (column 1, line 41) for measuring a fuel level in a motor vehicle fuel tank (column 1, lines 4, 40), comprising one or more electronic modules that are arranged on a substrate (Figure 1, element 17), wherein said substrate is suitable for fixating with respect to a fuel tank wall (column 2, lines 14-15; as Hart does not disclose that his substrate is made of a highly unusual material, it is interpreted to be *suitable* for fixating with respect to a fuel tank wall, and further an encapsulating cap (figure 1, elements 13, 16; pipe 13, in combination with plug 16 constitute a cap) connected to said substrate (the substrate 17 is fixed to pipe 13) and forming an encapsulated space that comprises said one or more electronic modules and that is separated from any fuel or vapor outside said

encapsulated space (column 2, lines 13-15). The pipe 13 and the plug 16 separate the electronic modules from fuel and fuel vapor.

Regarding Claim 7, Hart discloses a motor vehicle fuel tank (column 1, lines 4, 40) comprising an electronic circuit arrangement (column 1, line 41), said electronic circuit arrangement for measuring a fuel level in said motor vehicle fuel tank (column 1, line 4; fuel gauging device indicates measuring fuel level), said electronic circuit arrangement further comprising one or more electronic modules that are arranged on a substrate (Figure 1, element 17), wherein said substrate is suitable for fixating with respect to a fuel tank wall (column 2, lines 14-15; as Hart does not disclose that his substrate is made of a highly unusual material, it is interpreted to be *suitable* for fixating with respect to a fuel tank wall, and further comprising an encapsulating cap (figure 1, elements 13, 16; pipe 13, in combination with plug 16 constitute a cap) connected to said substrate (the substrate 17 is fixed to pipe 13) and forming an encapsulating space that contains said one or more electronic modules and that is separated from any fuel or vapor outside said encapsulated space (column 2, lines 13-15). The pipe 13 and the plug 16 separate the electronic modules from fuel and fuel vapor.

Regarding Claim 8, Hart discloses a motor vehicle fuel tank as claimed in Claim 7, wherein said substrate comprises one or more electrical through-connections to an outside of said fuel tank (Figure 2; column 2, lines 5-8). The substrate is connected through mounting flange 11, with wires to instrument gauges outside the tank.

Regarding Claim 9, Hart discloses a motor vehicle comprising a fuel tank said fuel tank (column 1, lines 4, 40) further comprising an electronic circuit arrangement

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(column 1, line 41) for measuring a fuel level in said fuel tank (column 1, line 4; fuel gauging device indicates measuring fuel level), said electronic circuit arrangement further comprising one or more electronic modules that are arranged on a substrate (Figure 1, element 17), wherein said substrate is suitable for fixating with respect to a fuel tank wall (column 2, lines 14-15; as Hart does not disclose that his substrate is made of a highly unusual material, it is interpreted to be *suitable* for fixating with respect to a fuel tank wall, and further comprising an encapsulating cap (figure 1, elements 13, 16; pipe 13, in combination with plug 16 constitute a cap) connected to said substrate (the substrate 17 is fixed to pipe 13) and forming an encapsulating space that contains said one or more electronic modules and that is separated from any fuel or vapor outside said encapsulated space (column 2, lines 13-15). The pipe 13 and the plug 16 separate the electronic modules from fuel and fuel vapor.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 6, 12 and 15 are rejected** under 35 U.S.C. 103(a) as being unpatentable over US Patent 3,638,491 to Atlee Hart (Hart) in view of US Patent 5,832,772 to Thomas McEwan (McEwan).

Hart discloses the devices and methods of Claims 3, 7 and 9, but does not specifically disclose that the electronic circuit arrangement contains a magnetically driven circuit or an ultrasound driven circuit.

McEwan discloses that said one or more electronic modules comprise a magnetically driven circuit or an ultrasound driven circuit for effecting said measuring (column 1, line 30).

It is obvious to combine McEwan with Hart because Hart's capacitive sensor can lose accuracy as grime and other coatings form on the walls of the container near the sensor (column 1, lines 25-30).

5. **Claims 5, 11, and 14 are rejected** under 35 U.S.C. 103(a) as being unpatentable over US Patent 3,638,491 to Atlee Hart (Hart) in view of US Patent 3,404,215 to Darnell Burks et al (Burks).

Hart discloses the devices and methods of Claims 3, 9 and 7, but does not specifically disclose that the substrate is a ceramic substrate.

Burks discloses a ceramic substrate (column 2, lines 24-26) with electronic elements hermetically sealed to said ceramic substrate (column 1, lines 23-25).

It is obvious to combine Burks and Hart because Burks' invention is of low weight and volume (column 1, lines 39-40), which would be useful to a space and weight intensive application, such as the fuel tank of a motor vehicle, such as an airplane or an automobile.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 6,828,898 to Ronald Dedert et al. is a ceramic substrate for fuel tanks having a hermetic seal analogous to a cap. US Patent 5,325,716 to Hans Hafner is a filling level indicator incorporating a waterproof cap.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gunnar J. Gissel whose telephone number is 571-270-3411. The examiner can normally be reached on Mon-Fri, 7:30AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Nguyen can be reached on 571-272-2402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GJG
11/9/2007

/Kimberly D Nguyen/
Primary Examiner, Art Unit 4176

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